

SAMSUNG

**LW-15E23C
LW-17E24C
(For PAL systems)
TFT-LCD TV/Monitor**




**User's
Manual**

For Better Display

1. Adjust computer resolution and screen injection rate (refresh rate) in control panel of computer as described below to enjoy the best quality of picture. You can have an uneven quality of picture in the screen if the best quality of picture is not provided in TFT-LCD.
 - Resolution: 15" 1024 x 768 • Vertical frequency (refresh rate): 60 Hz
 - 17" 1280 x 1024
2. TFT LCD panel manufactured by using advanced semiconductor technology with precision of 99.999% above is used for this product. But the pixels of RED, GREEN, BLUE and WHITE color seem to be bright sometimes or some of black pixels could be seen. This is not from bad quality and you can use it without uneasiness.
 - For example, the number of TFT LCD pixels that is contained in this product are 2,359,296 (15"), 3,932,160 (17").
3. When you clean the monitor and the panel outside, please apply the recommended small amount of cleaner by using soft and dry cloth and polish it. Let LCD area not to be forced but to be scrubbed out softly. If excessive force is applied, you can have a stain on it.
4. If you are not satisfied with the quality of picture, you can get better quality of picture by executing "auto adjustment function" in display screen that is appeared as window termination button is pressed. If there's still noise after automatic adjustment, use FINE/COARSE adjustment function.



Manufactured under license from Dolby Laboratories "Dolby", and the  are trademarks of Dolby Laboratories.

Information in this document is subject to change without notice.
© 2001 Samsung Electronics Co., Ltd. All rights reserved.

Reproduction in any manner whatsoever without the written permission of Samsung Electronics Co., Ltd. is strictly forbidden.

Samsung Electronics Co., Ltd. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.



The *Samsung logo* is the registered trademarks of Samsung Electronics Co., Ltd.; *Microsoft, Windows®* and *Windows® NT* are registered trademarks of Microsoft Corporation; *VESA, DPMS* and *DDC* are registered trademarks of Video Electronics Standard Association; the *ENERGY STAR* name and logo are registered trademarks of the U.S. Environmental Protection Agency (EPA). As an ENERGY STAR Partner, Samsung Electronics Co., Ltd. has determined that this product meets the ENERGY STAR guidelines for energy efficiency. All other product names mentioned herein may be the trademarks or registered trademarks of their respective owners.

Table of Contents

Safety Instructions	2
Unpacking Your TV/Monitor	3
Setting up Your LCD TV/Monitor	4
Setting up an Ergonomic Workstation	4
TV/Monitor Location	4
Workstation Height	4
Viewing Angle	4
Connecting Your LCD TV/Monitor	5
Plug and Play	6
Installing the Video Driver	6
Self-Test Feature Check (STFC)	6
Getting Help	7
Warm-up Time	7
Adjusting Your LCD TV/Monitor	8
User Controls	8
Automatic Save	9
Direct-Access Features	10
OSD Lock/Unlock	10
On Screen Display (OSD)	11
Accessing the Menu System	11
OSD Functions and Adjustments	12
PC Functions and Adjustments	13
TV/ Video Functions and Adjustments	17
Appendix	20
By Remote-Control	20
TELETEXT MODE	22
PowerSaver	24
Troubleshooting	25
Specifications	28
Pin Assignments	30
Display Modes	31
Attaching a Wall or Arm Mounting Device	32
Installing VESA Compliant Mounting Devices	33
Wall Mount Instructions	33
Retractable Stand	34
Maintenance of Your LCD TV/Monitor	34
Index	35
Regulatory Information	Inside back cover
Customer Service / Technical Support	Back cover

Safety Instructions

- 1** Before connecting the AC power cord to the DC adapter outlet, make sure the voltage designation of the DC adapter corresponds to the local electrical supply.
- 2** Never insert anything metallic into the cabinet openings of the liquid crystal display (LCD) TV/Monitor; doing so may create the danger of electric shock.
- 3** To avoid electric shock, never touch the inside of the LCD TV/Monitor. Only a qualified technician should open the case of the LCD TV/Monitor.
- 4** Never use your LCD TV/Monitor if the power cord has been damaged. Do not allow anything to rest on the power cord, and keep the cord away from areas where people can trip over it.
- 5** Be sure to hold the plug, not the cord, when disconnecting the LCD TV/Monitor from an electric socket.
- 6** Openings in the LCD TV/Monitor cabinet are provided for ventilation. To prevent overheating, these openings should not be blocked or covered. Also, avoid using the LCD TV/Monitor on a bed, sofa, rug, or other soft surface. Doing so may block the ventilation openings in the bottom of the cabinet. If you put the LCD TV/Monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.
- 7** Put your LCD TV/Monitor in a location with low humidity and a minimum of dust.
- 8** Do not expose the LCD TV/Monitor to rain or use it near water (in kitchens, near swimming pools, etc.). If the LCD TV/Monitor accidentally gets wet, unplug it and contact an authorized dealer immediately. You can clean the LCD TV/Monitor with a damp cloth when necessary, but be sure to unplug the LCD TV/Monitor first.
- 9** Place the LCD TV/Monitor on a solid surface and treat it carefully. The screen is made of thin glass with a plastic front surface and can be damaged if dropped, hit or scratched. Do not clean the front panel with keton-type materials (e.g., acetone), ethyl alcohol, toluene, ethyl acid, methyl, or chloride – these may damage the panel.
- 10** Locate your LCD TV/Monitor near an easily accessible AC outlet.
- 11** If your LCD TV/Monitor does not operate normally – in particular, if there are any unusual sounds or smells coming from it – unplug it immediately and contact an authorized dealer or service center.
- 12** High temperature can cause problems. Don't use your LCD TV/Monitor in direct sunlight, and keep it away from heaters, stoves, fireplaces, and other sources of heat.
- 13** Unplug the LCD TV/Monitor when it is going to be left unused for an extended period of time.
- 14** Unplug your LCD TV/Monitor from the AC outlet before any service.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

Unpacking Your TV/Monitor

Please make sure the following items are included with your TV/Monitor. If any items are missing, contact your dealer.



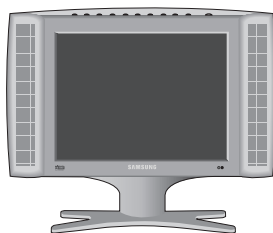
Installation CD
(Not available in all locations)



Warranty Card
(Not available in all locations)



Manual



TV/Monitor



Remote Controller



Power Cord



DC Adapter



15-pin D-Sub Signal Cable



Batteries
(AAA x 2)

Setting up Your LCD TV/Monitor

Setting up an Ergonomic Workstation

Consider the advice given below before you install your TV/Monitor.

TV/Monitor location

Choose a position that exposes your TV/Monitor to the least reflection from lights or windows, usually at a right angle to any window.

Workstation height

Place your LCD TV/Monitor so that the top of the screen is slightly below your eye level when you are comfortably seated.

Viewing angle

Tilt the screen until you feel comfortable working with your TV/Monitor.

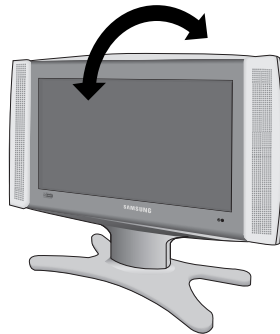


Figure 1. Tilt the screen

Setting up Your LCD TV/Monitor

Connecting Your LCD TV/Monitor

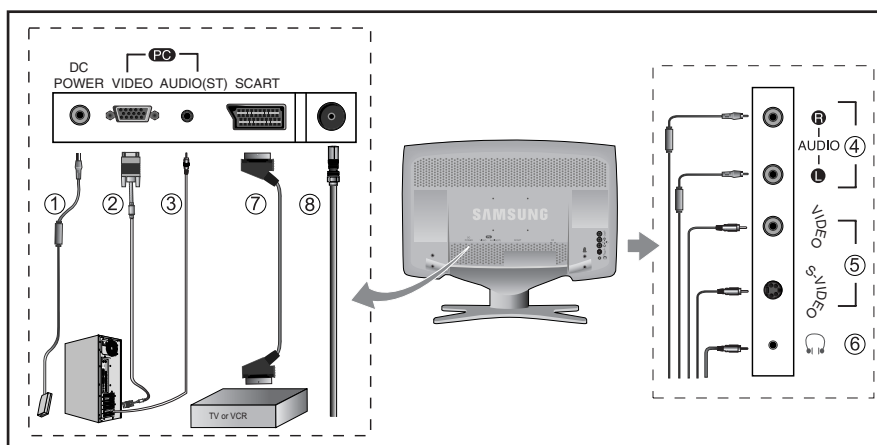


Figure 2. Cable connections

1. Connecting Computer (① ② ③)

- A. Connect the power cord to the DC Adaptor and connect the adaptor jack to the DC 14V power connector on the back of the TV/Monitor.
- B. Connect the 15-pin D-SUB of the video signal cable to the PC video connector on the back of the TV/Monitor.
- C. Connect the stereo audio cable to "Audio (ST)" on the back of the TV/Monitor and the other end to "Audio Out" terminal of the sound card on your computer.
- D. If necessary, please install TV/Monitor driver contained on the accompanied CD. For driver installation, please refer "Installing Video Driver" section on page 6.

2. Connecting External A/V Devices (④ ⑤)

- A. Connect RCA audio cables to "Audio (R)" and "Audio (L)" terminals and the other ends to corresponding audio out terminals on the A/V device.
(Stereo-RCA Cable not included)
- B. Connect RCA (Yellow) or S-VHS cable to an appropriate external A/V device such as VCR, DVD or camcorder. (RCA cable and S-VHS cable not included)
- C. Headphone may be connected to the headphone output on the right-hand side of the TV/Monitor (⑥). **While the headphone is connected, the sound from the built-in speakers will be disabled.**

3. Connecting scart and TV/CATV (⑦ ⑧)

- A. Connect Scart Cable such as TV etc... (Scart cable not included)
- B. Connect an antenna or CATV cable to the antenna terminal on the back of the TV/Monitor.

Setting up Your LCD TV/Monitor

Plug and Play

The adoption of the new **VESA®** Plug and Play solution eliminates complicated and time consuming setup. It allows you to install your TV/Monitor in a Plug and Play compatible system without the usual hassles and confusion. Your PC system can easily identify and configure itself for use with your display. This TV/Monitor automatically tells the PC system its Extended Display Identification Data (EDID) using Display Data Channel (DDC) protocols so the PC system can automatically configure itself to use the LCD. If your PC system needs a video driver, follow the instructions given below according to the operating system your computer uses.

Installing the Video Driver

The CD that accompanies this product contains the necessary drivers for installing your TV/Monitor. Please refer to the driver installation instructions included with your CD package for more information.

Self-Test Feature Check (STFC)

Your TV/Monitor provides a self-test feature that allows you to check whether your TV/Monitor is functioning properly. Make sure that PC is selected as a primary source by checking if the source indicator LED labeled "PC" is on. If your TV/Monitor and computer are properly connected but the TV/Monitor screen remains dark and the power indicator is blinking, run the TV/Monitor self-test by following the steps given below:

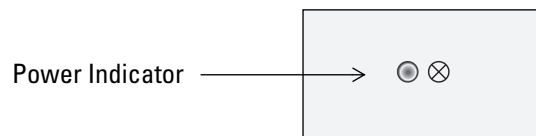


Figure 3. Power Indicator

- 1 Turn off both your computer and the TV/Monitor.
- 2 Unplug the video cable from the back of the computer.
- 3 Turn on the TV/Monitor.

Setting up Your LCD TV/Monitor

If the TV/Monitor is functioning properly, you will see a white box with a large blue oval Samsung logo and an error message "Check Signal Cable." in red color.

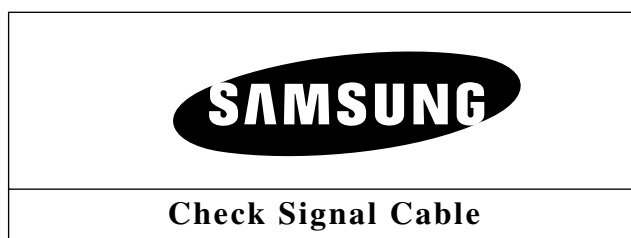


Figure 4. TV/Monitor self-test screen

This box also appears during normal operation if the video cable becomes disconnected or damaged.

- 4 Turn off your TV/Monitor and reconnect the video cable; then turn on both your computer and the TV/Monitor.

If your TV/Monitor screen remains blank after following the previous procedure, check your video controller and computer system; your TV/Monitor is functioning properly.

Getting Help

If your TV/Monitor does not display an image, check your cable connections and refer to "Troubleshooting" on page 25. If you experience difficulties with the quality of the displayed image, push Auto Button (see page 9) and refer to "Adjusting Your LCD TV/Monitor" on page 9 or "Troubleshooting" on page 25.

Warm-up Time

All LCD TV/Monitor need time to become thermally stable whenever you turn on the TV/Monitor after letting the TV/Monitor be turned off for a couple of hours. Therefore, to achieve more accurate adjustments for parameters, allow the LCD TV/Monitor to warm (be on) for at least 20 minutes before making any screen adjustments.

Adjusting Your LCD TV/Monitor

User Controls

Your LCD TV/Monitor allows you to easily adjust the characteristics of the image being displayed. All of these adjustments are made using the control buttons on the top of the TV/Monitor. While you use these buttons to adjust the controls, an OSD shows you their numeric values as they change.

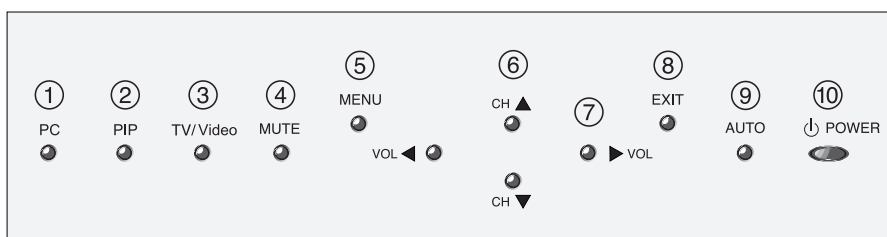


Figure 5. User control locations

No.	Name	Description
1	PC	<ul style="list-style-type: none"> ■ Selects PC source. ■ PIP window off.
2	PIP	<ul style="list-style-type: none"> ■ Activates PIP(Picture-in-Picture) window directly in PC mode. ■ Selects video sources in PIP. (TV/ Video1(scart)/ Video2(A/V)/ S-video)
3	TV/VIDEO	<ul style="list-style-type: none"> ■ Activates full screen TV/Video window. ■ Selects TV/Video sources. (TV/ Video1(scart)/ Video2(A/V)/ S-video)
4	MUTE	<ul style="list-style-type: none"> ■ Selects sound mute.
5	MENU	<ul style="list-style-type: none"> ■ Opens the OSD and selects the highlighted function.
6	▲ CH ▼	<ul style="list-style-type: none"> ■ Moves the selector up or down on the OSD. ■ Increases or decreases the channel number.

Adjusting Your LCD TV/Monitor

No.	Name	Description
7	◀ VOL ▶	<ul style="list-style-type: none"> ■ Moves the selector left or right on the OSD. ■ Increases or decreases the values of the selected function. ■ Increases or decreases the level of audio volume.
8	EXIT	<ul style="list-style-type: none"> ■ Exits from menus and sub-menus. ■ Exits from the OSD system.
9	AUTO	<ul style="list-style-type: none"> ■ "Auto" allows the TV/Monitor to self-adjust to the incoming video signal. The values of fine, coarse and position are adjusted automatically. ■ To make the automatic adjustment function sharper, execute the 'AUTO' function while the AUTO PATTERN is on.
10	POWER	<ul style="list-style-type: none"> ■ Turns ON/OFF the TV/Monitor.

Automatic Save

Whenever you open the OSD and allow an adjustment window to remain active for about 3 seconds without pressing other buttons, the TV/Monitor automatically saves any adjustment you have made. These changes are saved into a user area in the TV/Monitor.

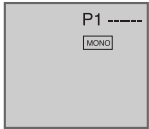

The TV/Monitor can save adjustments for up to 5 user modes. It has 9 for LW-15E23C (11 for LW-17E24C) factory preset or preload modes, one for each signal frequency as listed in table 7 on page 31.

If you have made no adjustments, the OSD disappears and the TV/Monitor does not save anything.

Adjusting Your LCD TV/Monitor

Direct-Access Features

While you are watching full screen TV or in PIP mode

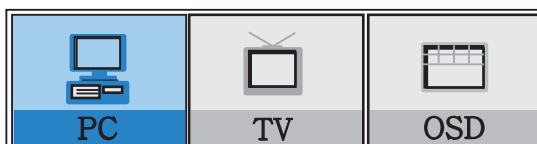
Program		Valid only after performing "Channel auto program". When OSD is not on the screen, push the "▼" or "▲" button to select program channel number. 1 Push the "▼" button to decrease channel number. 2 Push the "▲" button to increase the channel number.
Volume		When OSD is not on the screen, push the "◀" or "▶" button to adjust volume. 1 Push the "◀" button to decrease the volume. 2 Push the "▶" button to increase the volume.

OSD Lock/Unlock

While OSD window is not on, push and then hold Menu button for about 5 seconds to Lock or Unlock OSD menus. When OSD menus are locked, all OSD menus are disabled and colored in gray to indicate that those functions are not accessible but the following functions:

1. PC
 - Brightness
 - Contrast
2. TV
 - Channel
 - Volume
3. Control buttons
 - Direct access keys: PC, PIP, Video, Audio, Channel, Volume, Menu, Exit, Auto
4. Remote Controller
 - All direct access keys on the remote controller

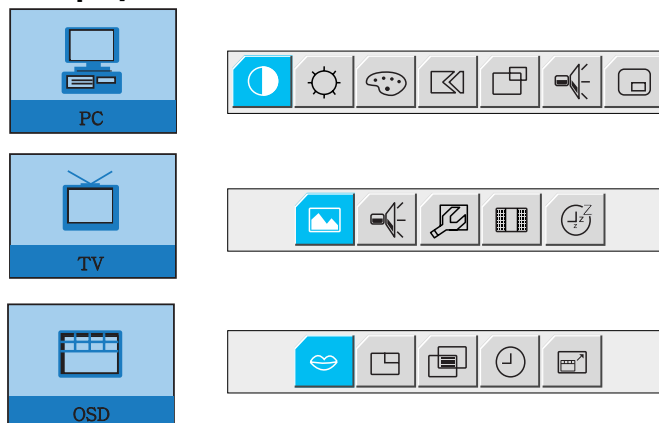
Initial OSD icons



☞ Some OSD menus are disabled in gray color when they are not available in a certain mode of operation. Those menus are enabled when corresponding OSD menus are activated.

Adjusting Your LCD TV/Monitor

On Screen Display (OSD)



Accessing the menu system

- 1** With the OSD off, push the **MENU** button to display the main OSD menu.
- 2** Use the "▼ ▲ ◀ ▶" buttons to move from one function to another. As you move from one icon to another, the function name changes to reflect the function or group of functions represented by that icon. See Table 1 starting on the next page to view a complete list of all of the functions available for the TV/Monitor.
- 3** Press the **MENU** button once to activate the highlighted function, then follow the Tool Tips to select the function and adjust the value.
- 4** Use "▲" and "▼" buttons to select the sub-menu, and press the **MENU** button once to activate the selected sub-menu.
- 5** After selecting a function, use the "◀" and "▶" buttons to make necessary adjustments. The setting bar moves and the numeric value indicator changes to reflect your adjustments.

NOTE: The numeric value indicator is provided as a point of reference only and has nothing to do with a real measurement.

- 6** Push the **EXIT** button a couple of times to return to the main menu to select another function or to exit from the OSD.

Adjusting Your LCD TV/Monitor

OSD functions and adjustments

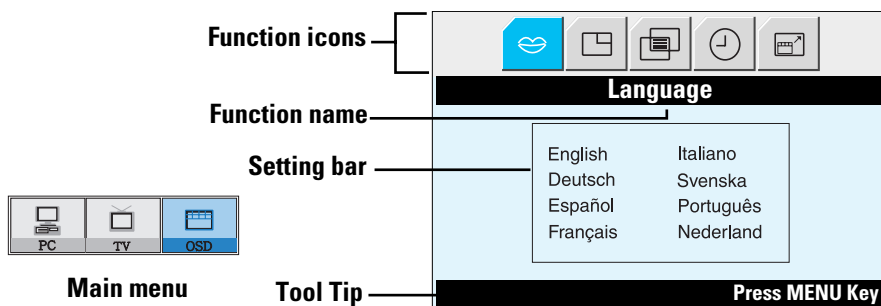








Table 1. Screen controls

Main Menu	Icon	Menus and Sub-menus	Function Descriptions
			◀ ▶
		Language	OSD language and appearance can be changed. English Italiano Deutsch Svenska Español Português Français Nederland
		Position	Move the OSD Window to the vertical and horizontal direction.
		Halftone	Change the opaqueness of the background of the OSD.
		Duration	The number of seconds that the OSD will remain visible before disappearing.
		Size/ Melody	Resize the OSD Window. This menu has the function that can sound the melody or can't on the occation of power on/off.

Adjusting Your LCD TV/Monitor

PC functions and adjustments

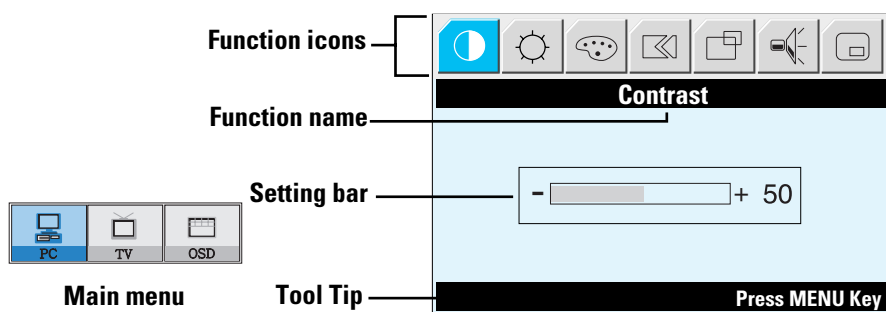














Table 1. Screen controls (Continued)

Main Menu	Icon	Menus and Sub-menus	Function Descriptions	
			◀	▶
		Contrast		
		Brightness		
		Color Control	The tone of color can be changed from reddish white to bluish white. The individual color components are also user customizable.	
		■ Mode1	Reddish white.	
		■ Mode2	Plain white.	
		■ Mode3	Bluish white.	
		■ User Mode	User customizable.	
		■ Reset	Color parameters are replaced with the factory default values.	



Adjusting Your LCD TV/Monitor

Table 1. Screen controls (Continued)

Main Menu	Icon	Menus and Sub-menus	Function Descriptions	
			◀	▶
		Image	<ul style="list-style-type: none"> • Image Lock • Image Size • Image Effect 	
		Image Lock	Image Lock is used to fine tune and get the best image by removing noises that create unstable images with jitters and shimmers.	
		<ul style="list-style-type: none"> ■ Coarse ■ Fine 	<p>The Coarse and Fine adjustments allow you to fine tune the image quality of your TV/Monitor to your preference.</p> <p>Use the "◀" and "▶" buttons to remove any noise.</p> <p>If satisfactory results are not obtained using the Fine adjustment, use the Coarse adjustment and then use Fine again.</p> <p>This function may change the width of the image. Use the H-Position menu to center the image on the screen.</p>	
			When Coarse value is wrong.	When Fine value is wrong.
				
		■ Information	Display current display mode.	
		■ Reset	Image lock and position parameters are replaced with the factory default values.	




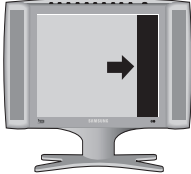

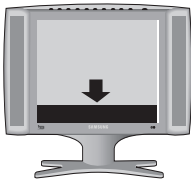


Adjusting Your LCD TV/Monitor

Table 1. Screen controls (Continued)

Main Menu	Icon	Menus and Sub-menus	Function Descriptions
			◀ ▶
		Image Size	The size of the image being displayed can be handled in several different ways.
		■ Expand1	Resize the image to fill the whole screen. (applicable to PC RGB only)
		■ Expand2	Expand images keeping the original aspect ratio. (applicable to PC RGB only)
		■ Normal	Display the incoming image as it is. (applicable to PC RGB only)
		■ Zoom	The image can be magnified up to 64 times larger than the original image. The enlarged image can also be panned.
		■ Pan	Move the zoomed image horizontally and vertically.
		Image Effect	Image being displayed can be made softer or sharper. <ul style="list-style-type: none"> • Sharpen more • Sharpen • Medium • Soften • Soften more

Adjusting Your LCD TV/Monitor

Table 1. Screen controls (Continued)

Main Menu	Icon	Menus and Sub-menus	Function Descriptions	
			◀	▶
		H-position		
		◀ ▶		
		V-position		
		▲ ▼		
		Sound	The TV/Monitor has a built-in high fidelity stereo audio amplifier. The audio circuit processes audio signal from various external input sources such as DVD, VCR, TV or PC.	
		■ Bass	Emphasize low frequency audio.	
		■ Treble	Emphasize high frequency audio.	
		■ Virtual Dolby (Surround)	On, Off	
		PIP (Picture-in-Picture)	When external A/V devices such as VCR, DVD or RF(TV)cable are connected to the TV/Monitor, PIP allows you to watch video from such devices in a small window super-imposed on pc video signal.	
		■ PIP Size	Resize PIP window.	
		■ PIP Position	Change PIP window position.	

Adjusting Your LCD TV/Monitor

TV/ Video functions and adjustments

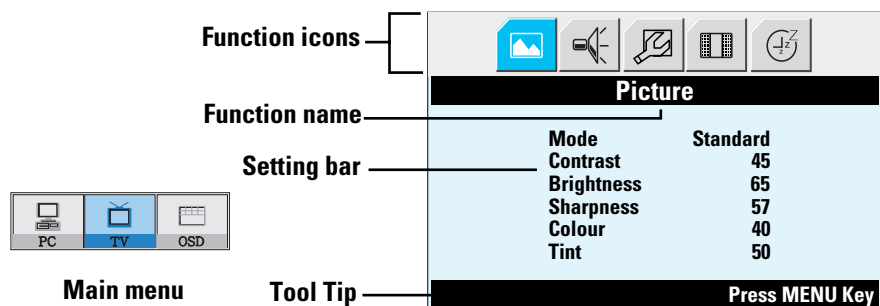







Table 1. Screen controls (Continued)

Main Menu	Icon	Menus and Sub-menus	Function Descriptions
		Picture	This function is active if you select an input source other than PC. (DVD, VCR, TV)
		■ Mode	The diverse screen users need. (Standard, Natural, Mild, Custom)
		■ Contrast	Adjust the contrast of video or TV without affecting PC RGB's contrast. (Applicable to Custom mode only)
		■ Brightness	Adjust the brightness of video or TV without affecting PC RGB's brightness. (Applicable to Custom mode only)
		■ Sharpness	Adjust the sharpness of video or TV image. (Applicable to Custom mode only)
		■ Colour	Change the richness of colour. (Applicable to Custom mode only)
		■ Tint	Change the colour. (Applicable to Custom mode only) - NTSC only







Adjusting Your LCD TV/Monitor

Table 1. Screen controls (Continued)

Main Menu	Icon	Menus and Sub-menus	Function Descriptions
		Sound	The TV/Monitor has a built-in high fidelity stereo audio amplifier. The audio circuit processes audio signal from various external input sources such as DVD, VCR, TV, Scart, or PC.
		■ Mode	The diverse sound users need. (Standard, Music, Movie, Speech, Custom)
		■ Bass	Emphasize low frequency audio. (Applicable to Custom mode only)
		■ Treble	Emphasize high frequency audio. (Applicable to Custom mode only)
		■ Virtual Dolby (Surround)	On, Off
		Setup	The channel system can be set in several different ways.
		■ Auto Store	You can scan the frequency ranges available on your television in your area and store all the channels found automatically. The following Countries are available. : Belgie, Deutschland, Espania, France, Italia, Nederland, Schweiz, Sverige, UK, East Europe.
		■ Manual Store	<ul style="list-style-type: none"> • Color system: Adjust repeatedly until the color is of the best quality. (Auto ↔ PAL ↔ SECAM ↔ NT4.4) • Sound system: Adjust repeatedly until the sound is of the best quality. (BG ↔ DK ↔ I ↔ L) • Search: The tuner scans the frequency range until the first channel or the channel that you selected is received on your screen. • Program: Inputting the appropriate program number on the screen. • Store: It's used to restore the number user inputs. • Search: Choosing the air channel through the adjustment of up/down under the current frequency.

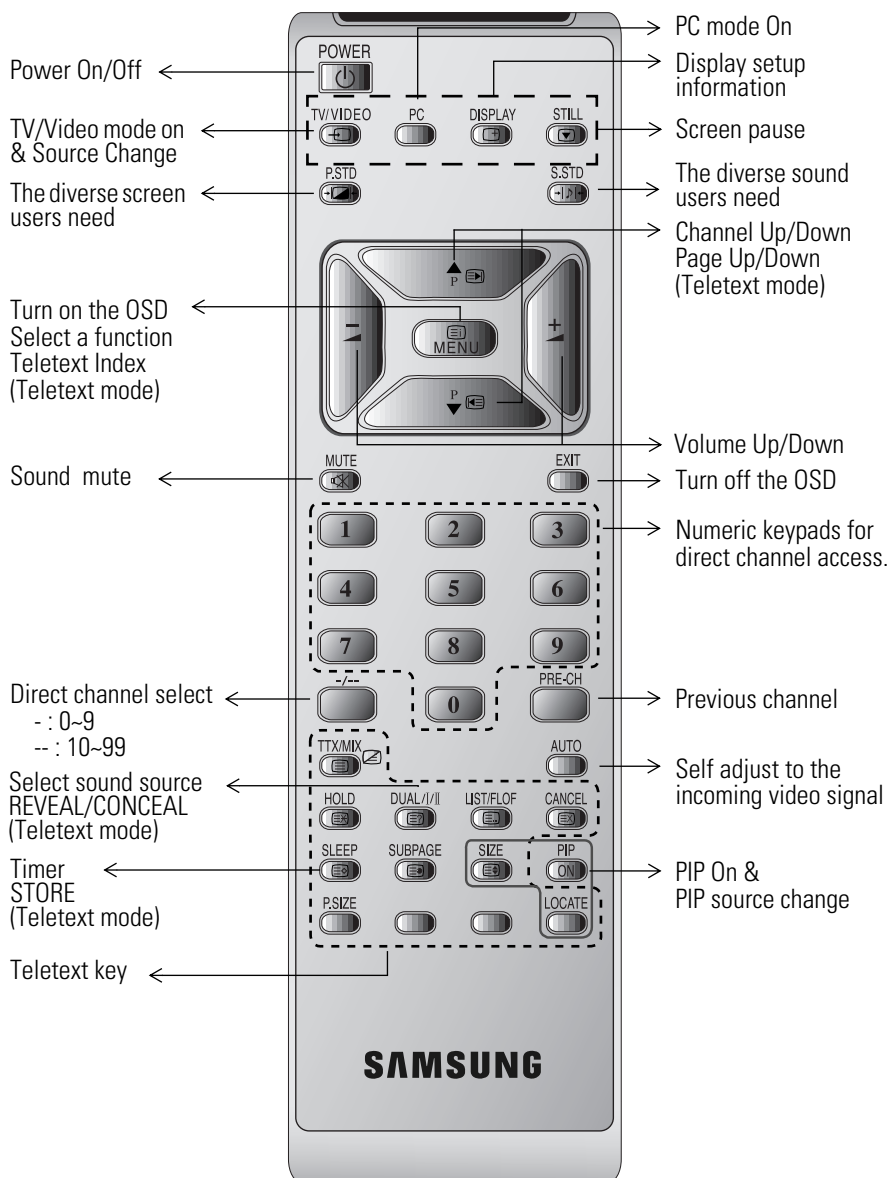
Adjusting Your LCD TV/Monitor

Table 1. Screen controls (Continued)

Main Menu	Icon	Menus and Sub-menus	Function Descriptions
		■ Name	To... - Select a program - Move on the next or previous letter Press the... ▼ or ▲ button ▲ or ▼ button
		■ Add/Erase	To select the required channel. To add or erase the desired channel by pressing the ▲, ▼ or ◀, ▶ button.
		■ Fine Tune	To select the "Fine tune" and press the ◀ or ▶ button.
		■ Channel Sort	Channel order can be re-arranged by this menu.
		Active Area	• Normal 
			• 16:9 
		Timer	The TV/Monitor system will turn off automatically if one of three time intervals is selected. • Off • 30 min • 60 min • 120 min

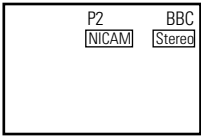

Appendix

By Remote-Control



Appendix

■ Features that can only be accessed via remote controller

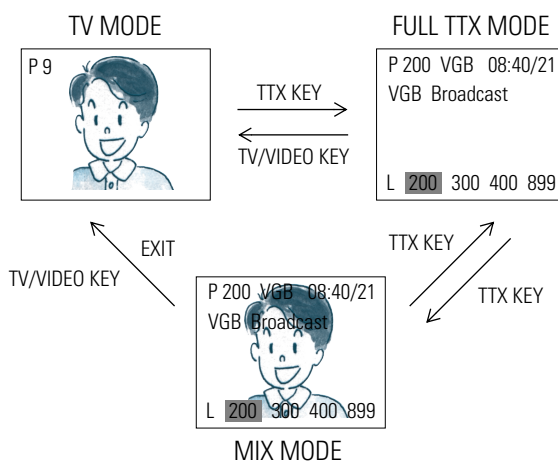
Display	Shows a selected video source, audio source, current channel number, sound mode and the state of audio mute on the upper right corner of the screen.																								
																									
DUAL/I/II	<p>You can set the audio mode by using this button. When you press this button, current sound mode is displayed on the upper right corner of the screen.</p>  <p>Note: LW-15E23C/17E24C have an automatic stereo detection feature. Thus, depending on the types of audio, the TV/Monitor automatically changes their audio mode from Mono to Stereo or vice versa.</p> <table> <tr> <th></th><th>Audio Type</th><th>DUAL/I/II</th><th>Default</th></tr> <tr> <td rowspan="3">FM Stereo</td><td>Mono</td><td>Mono</td><td rowspan="2">Automatic Change</td></tr> <tr> <td>Stereo</td><td>Mono ← → Stereo</td></tr> <tr> <td>Dual</td><td>Dual1 ← → Dual2</td><td>Dual1</td></tr> <tr> <td rowspan="3">NICAM</td><td>Mono</td><td>Mono</td><td rowspan="2">Automatic Change</td></tr> <tr> <td>Stereo</td><td>Mono ← → Stereo</td></tr> <tr> <td>Dual</td><td>Mono → Dual1 → Dual2 ↑</td><td>Dual1</td></tr> </table>				Audio Type	DUAL/I/II	Default	FM Stereo	Mono	Mono	Automatic Change	Stereo	Mono ← → Stereo	Dual	Dual1 ← → Dual2	Dual1	NICAM	Mono	Mono	Automatic Change	Stereo	Mono ← → Stereo	Dual	Mono → Dual1 → Dual2 ↑	Dual1
	Audio Type	DUAL/I/II	Default																						
FM Stereo	Mono	Mono	Automatic Change																						
	Stereo	Mono ← → Stereo																							
	Dual	Dual1 ← → Dual2	Dual1																						
NICAM	Mono	Mono	Automatic Change																						
	Stereo	Mono ← → Stereo																							
	Dual	Mono → Dual1 → Dual2 ↑	Dual1																						

Appendix

■ TELETEXT (TTX) MODE

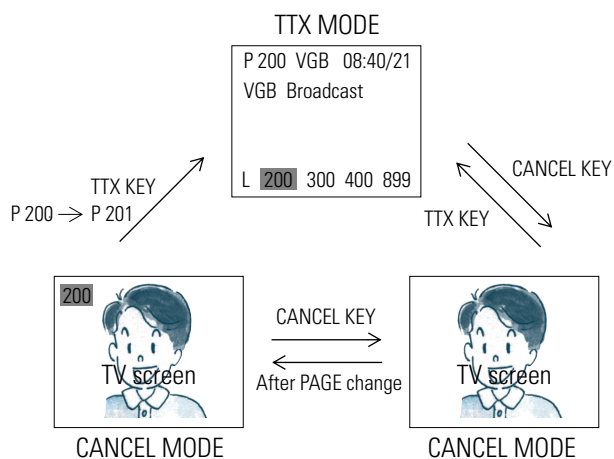
TTX ON 
(MIX )

- This key is used to toggle TTX MODE and TTX MIX MODE.
- When TTX KEY is converted to TV MODE, TV MODE is changed to NORMAL SIZE TTX MODE. While changing to FULL TTX MODE, OSD vanishes.










CANCEL 

- When you switch back to TTX mode again after watching TV for a little while or while the selected page is scanning.
- This key is used to cross out the TTX display completely on the screen. TTX is still valid under CANCEL when the key is inserted.



Appendix

HOLD 	<ul style="list-style-type: none"> ■ The MULTIPLE PAGE display changes after a certain time passes. The display does not change but is stopped when the key is inserted. When HOLD ON is selected, it halts the PAGE ACQUISITION then displays the HOLD SYMBOL instead of the PAGE NUMBER on the upper left of the displayed screen.
SIZE 	<ul style="list-style-type: none"> ■ This key is used to rotate the 3 states below. <ol style="list-style-type: none"> ① NORMAL SIZE : DISPLAY FULL SCREEN IN NORMAL SIZE ② DOUBLE TOP : DISPLAY UPPER HALF OF THE SCREEN IN DOUBLE HEIGHT ③ DOUBLE BOTTOM : DISPLAY LOWER HALF OF THE SCREEN IN DOUBLE HEIGHT
REVEAL / CONCEAL 	<ul style="list-style-type: none"> ■ This key is used to toggle the concealed ttx information to the state of the REVEAL/CONCEAL.
SUBPAGE 	<ul style="list-style-type: none"> ■ This key is for use to TOGGLE SUBPAGE/NORMAL MODE. ■ S**** is checked at the time of entering the SUBPAGE MODE, it stops at the entered SUBPAGE when the four digit entry is valid.
INDEX 	<ul style="list-style-type: none"> ■ FLOF moves to the INDEX and TOP moves to INFO in the time of inputting this key.
LIST / FLOF 	<p>It has converted to the LIST MODE and FLOF MODE.</p> <ul style="list-style-type: none"> ■ FLOF MODE is released and then transferred to LIST MODE when the function is activated. This key restores up to four pages for each channel-PSEUDO FLOF/FAVORATE MODE-provides a search function for the pages frequently scanned via the RED/GREEN/YELLOW/CYAN key.
STORE 	<ul style="list-style-type: none"> ■ This key displays the 24 ROW differently for a short period of time in order to indicate the displayed 24 ROW page has been restored in the list.
DIGIT ENTRY (Number key)	<ul style="list-style-type: none"> ■ The number(0-9)key is used to input PAGE NUMBER or SUBPAGE. ■ The inputting number key make it cancel the hold and DATA ACQUISITION stops.
PAGE UP/DOWN	<ul style="list-style-type: none"> ■ Using the CH UP/DOWN key to increase/decrease numbers: UP to 100 from 899 (PAGE 100 is available) and for DOWN to 899 from 100.
RED /GREEN / YELLOW /CYAN	<ul style="list-style-type: none"> ■ This key is used in the LIST MODE on the case of transferring the FASTTEXT.

Appendix

PowerSaver

This TV/Monitor has a built-in power management system called PowerSaver. This system saves energy by switching your TV/Monitor into a low-power mode when it has not been used for a certain period of time.

PowerSaver operates with a VESA DPMS compliant video card installed in your computer. You use a software utility installed on your computer to set up this feature. See Table 2 below for details.

Table 2. Power-saving modes

State	Normal Operation	Power-off Mode EPA/ENERGY2000
Power Indicator	Green	Green Blinking (1 sec interval)
Power Consumption	LW-15E23C: 48W (Max.) LW-17E24C: 58W (Max.)	Less than 2W

NOTE: This TV/Monitor automatically returns to normal operation when horizontal and vertical sync return. This occurs when you move the computer's mouse or press a key on the keyboard.

This TV/Monitor is EPA ENERGY STAR[®] compliant and ENERGY2000 compliant when used with a computer equipped with VESA DPMS functionality.

For energy conservation, turn your TV/Monitor OFF when you are not using it or when leaving it unattended for long periods.

Appendix

Troubleshooting

If you have a problem setting up or using your LCD TV/Monitor, you may be able to solve it yourself. Before contacting customer service, try the suggested actions that are appropriate to your problem.

Table 3. Troubleshooting – Image

What you see...	Suggested Actions	Reference
Screen is black and power indicator is off.	<ul style="list-style-type: none"> ■ Ensure that the power cord is firmly connected and the LCD TV/Monitor is on. 	Connecting your LCD TV/Monitor, page 5.
"Check Signal Cable" message.	<ul style="list-style-type: none"> ■ Ensure that the signal cable is firmly connected to the PC or video sources. ■ Ensure that the PC or video sources are turned on. 	Connecting your LCD TV/Monitor, page 5.
"Sync. Out of Range" message.	<ul style="list-style-type: none"> ■ Check the maximum resolution and the frequency of the video adaptor. ■ Compare these values with the data in the Display Modes Timing Chart. 	Display Modes, page 31.
The image is too light or too dark.	<ul style="list-style-type: none"> ■ Adjust the Brightness and Contrast. 	Brightness, page 13. Contrast, page 13.
Horizontal bars appear to flicker, jitter or shimmer on the image.	<ul style="list-style-type: none"> ■ Adjust the Fine function. 	Image Lock, Fine, page 14.
Vertical bars appear to flicker, jitter or shimmer on the image.	<ul style="list-style-type: none"> ■ Adjust the Coarse function and then adjust the Fine function. 	Image Lock, Coarse, page 14. Image Lock, Fine, page 14.

Appendix

Table 3. Troubleshooting – Image (Continued)

What you see...	Suggested Actions	Reference
Blinks every second as long as the power-safe mode indicator light is on.	<ul style="list-style-type: none"> ■ The TV/Monitor is using its power management system. ■ Move the computer's mouse or press a key on the keyboard. 	Power Saver, page 24.
Image is not stable and may appear to vibrate.	<ul style="list-style-type: none"> ■ Check that the display resolution and frequency from your PC or video board is an available mode for your TV/Monitor. On your computer check: Control Panel, Display, Settings. 	Display Modes, page 31.
	<ul style="list-style-type: none"> ■ If the setting is not correct, use your computer utility program to change the display settings. 	Installing the Video Driver, page 6.
	<p><i>NOTE: Your TV/Monitor supports multiscan display functions within the following frequency domain:</i></p>	
	<ul style="list-style-type: none"> ■ Horizontal frequency: ■ Vertical frequency: ■ Maximum refresh rate: 	<p>LW-15E23C : 30 kHz ~ 69 kHz LW-17E24C : 30 kHz ~ 81kHz</p> <p>56 Hz ~ 85 Hz</p> <p>LW-15E23C: 1024 x 768 @ 85 Hz LW-17E24C: 1280 x 1024 @ 76Hz</p>
Image is not centered on the screen.	<ul style="list-style-type: none"> ■ Adjust the horizontal and vertical position. 	H-Position, page 16. V-Position, page 16.
You need the TV/Monitor driver software.	<ul style="list-style-type: none"> ■ Download the driver from WWW pages: http://www.samsung-monitor.com http://www.samsungmonitor.com (USA Only) 	

Appendix

Table 4. Troubleshooting – Audio and TV

Problem	Suggested Actions	Reference
No sound.	■ Ensure that the audio cable is firmly connected to both the audio-in port on your TV/Monitor and the audio-out port on your sound card.	Connecting your LCD TV/Monitor, page 5.
	■ Check the volume level.	Sound Controls.
Sound level is too low.	■ Check the volume level.	Sound Controls.
	■ If the volume is still too low after turning the control to its maximum, check the volume control on the computer sound card or software program.	Refer to your computer, sound card or software documentation.
Sound is too high pitched or too low pitched.	■ Adjust the Treble and Bass to appropriate level.	Sound Controls, page 18.

Appendix

Specifications

Table 5. Technical and environmental specifications

		LW - 15E23C	LW - 17E24C
Panel	Size Display Size Type Pixel pitch Viewing Angle	15.0" Diagonal 304.1 (H) x 228.1 (V) mm a-si TFT active matrix 0.297 (H) x 0.297 (V) mm 70/70/60/60 (L/R/U/D) (Depending on the panel manufacturer, the viewing angle may be different from this spec.)	17.0" Diagonal 338 (H) x 270 (V) mm a-si TFT active matrix 0.264 (H) x 0.264 (V) mm 80/80/80/80 (L/R/U/D) (Depending on the panel manufacturer, the viewing angle may be different from this spec.)
* Frequency	Horizontal Vertical Display color	30 ~ 69 kHz 56 ~ 85 Hz 16,777,216 colors	30 ~ 81 kHz 56 ~ 85 Hz (~XGA) 60 ~ 76 Hz (SXGA) 16,777,216 colors
Display Resolution	Optimum Mode Maximum Mode	1024 x 768 @ 60 Hz 1024 x 768 @ 85 Hz	1280 x 1024 @ 60 Hz 1280 x 1024 @ 76 Hz
Input Signal	Sync. Video signal	H/V Separate, TTL, P. or N. H/V Composite, TTL, P. or N. Sync-on-green 0.3 Vp-p, N. 0.7 Vp-p @ 75 ohm	
TV	Color system Sound system	PAL, SECAM, NTSC 4.4 B/G, D/K, I, L, L'	
Video	Color system Video format	PAL/NTSC/SECAM CVBS, S-VHS	
Scart (Video1)	Video Input Video Output RGB Input	PAL/SECAM/NTSC/NT4.4 1.0 Vp-p @ 75 ohm 0.7 Vp-p @ 75 ohm	
Power Supply	Input Output	AC 100 ~ 240 V, 1.0 ~ 0.5A (50Hz / 60Hz) DC 14V/3A (15") DC 14V/3.5A (17")	

* Referring to Preset timing modes, page 31.

Appendix

Table 5. Technical and environmental specifications

		LW - 15E23C	LW - 17E24C
Power Consumption	Maximum Power Saving	48W < 2 W	58 W < 2 W
Dimensions/ Weight	Unit (WxHxD) : TV/Monitor body	18.6 x 12.4 x 2.0 inch/7.49 lbs (474 x 317 x 51 mm/3.4 kg)	20.8 x 14.4 x 2.2 inch/9.25 lbs (530 x 367 x 57 mm/4.2 kg)
	With stand	18.6 x 15.6 x 8.0 inch/ 8.70 lbs (474 x 397 x 204mm/3.95 kg)	20.8 x 17.6 x 8.0inch/10.5 lbs (530 x 447 x 204 mm/4.8 kg)
Environmental Considerations	Operating Temperature	50 °F to 104 °F (10 °C to 40 °C)	
	Operating Humidity	10% to 80%	
	Storage Temperature	-13 °F to 113 °F (-25 °C to 45 °C)	
	Storage Humidity	5% to 95%	
Audio Characteristics	Audio Input 1	RCA Jack Red(R) White(L), 0.5Vrms (-9dB)	
	Audio Input 2	3.5ø Stereo Jack, 0.5Vrms (-9dB)	
	Headphone out	Max. 10mW Output (3.5ø Stereo Jack 32Ω)	
	Frequency Response	RF: 80Hz ~ 15kHz (at- 3dB) A/V: 80Hz ~ 20kHz (at - 3dB)	

Appendix

Pin Assignments

Table 6. 15 pin D-sub connector

Pin	Separate H/V	Composite H/V	Sync-on-green
1	Red	Red	Red
2	Green	Green	Green + H/V Sync
3	Blue	Blue	Blue
4	GND	GND	GND
5	GND (DDC Return)	GND (DDC Return)	GND (DDC Return)
6	GND-Red	GND-Red	GND-Red
7	GND-Green	GND-Green	GND-Green
8	GND-Blue	GND-Blue	GND-Blue
9	No Connection	No Connection	Not used
10	GND-Sync/Self Test	GND-Sync/Self Test	GND-Sync/Self Test
11	GND	GND	GND
12	DDC_SDA	DDC_SDA	DDC_SDA
13	H_Sync	H/V Sync	Not used
14	V_Sync	Not used	Not used
15	DDC_SCL	DDC_SCL	DDC_SCL

Appendix

Display Modes

If the signal from the system equals to the standard signal mode, the screen is adjusted automatically. If the signal from the system doesn't equal to the standard signal mode, adjust the mode with referring to the Videocard user guide because the screen might not display or only the power LED might be on. For the display modes listed below, the screen image has been optimized during manufacture.

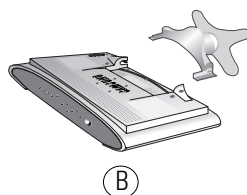
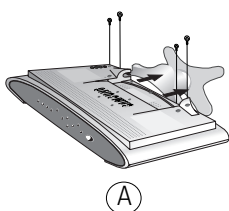
Table 7. Preset timing modes

Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)	Sync Polarity (H/V)
VGA	720 x 400	31.469	70.087	28.322	-/+
	640 x 480	31.469	59.940	25.175	-/-
	640 x 480	37.500	75.000	31.500	-/-
	640 x 480	43.269	85.008	36.000	-/-
SVGA	800 x 600	46.875	75.000	49.500	+/+
	800 x 600	53.674	85.061	56.250	+/+
XGA	1024 x 768	48.363	60.004	65.000	-/-
	1024 x 768	60.023	75.029	78.750	+/+
	1024 x 768	68.677	84.997	94.500	+/+
SXGA (LW-17E24C only)	1280 x 1024	63.981	60.020	108.000	+,-/+,-
	1280 x 1024	79.976	75.025	135.000	+/+

Appendix

Attaching a wall or Arm mounting device

The TV/Monitor supports VESA mounting standard for use with various VESA mounting devices. To install any VESA mounting device, please follow the instructions given.

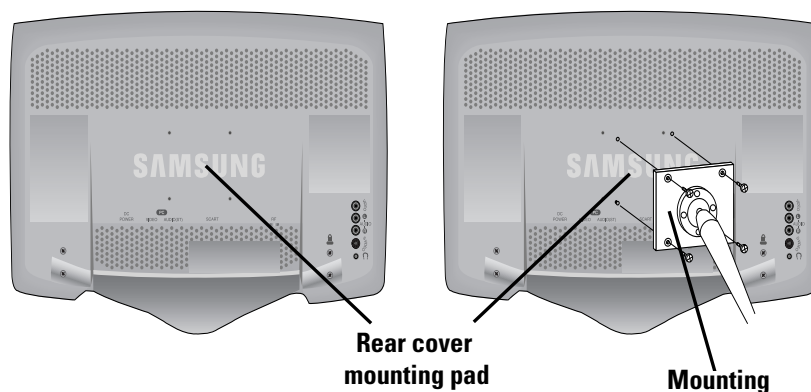


- 1** Lay the LCD TV/Monitor face-down on a flat surface with a cushion or other soft materials to protect the screen.
- 2** Remove all cable connected on the TV/Monitor.
- 3** Remove the four screws and then remove the Stand from the LCD TV/Monitor. (refer to the picture A&B)
- 4** Connect all cable you removed at step 2.
- 5** Now you are ready to install Wall/Arm mounting device depending on your applications.

Appendix

Installing VESA compliant mounting devices

Refer to page 32 to fold the base.



Align the mounting interface pad with the holes in the rear cover mounting pad and secure it with the four screws that came with the arm-type base, wall mount hanger or other bases.

Wall Mount Instructions

The following instructions apply to a hollow sheet-rock wall only Tools/Hardware needed - Philips screwdriver, four toggle bolts, 5/8in dia. Drill bit and drill. Contact Ergotron at (800) 888-8458 to purchase the triple pivot direct mount adapter and wall mount bracket kit.

- **LW-15E23C (15")** : No. 47 - 007 - 099 (Pivot direct mount adapter)
No. 97 - 101 - 003 (Wall mount bracket kit)
- **LW-17E24C (17")** : No. 47 - 007 - 099 - 02 (Pivot direct mount adapter)
No. 97 - 101 - 003 - 00 (Wall mount bracket kit)

Align the wall mount bracket on the wall at the desired height, making sure that the bracket will be mounted between the wall studs. Mark the four corner openings and drill four 5/8-dia. holes.

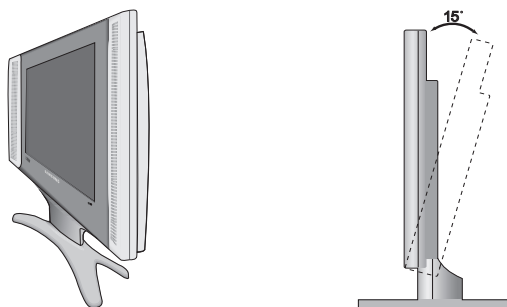
Assemble the wall mount kit according to the instructions provided with it.

Securely attach Ergotron's flat panel, triple pivot direct mount adapter to the back of the TV/Monitor using the four 4mm, .7 pitch x 10mm screws provided with the arm.

Secure the assembly to the wall using four 3/16 by 3-inch long toggle bolts.

Appendix

Retractable Stand



*NOTE: The maximum tilt angle is 15 degree to the backward direction. Please do not tilt the TV/Monitor other than specified range. **Excessive force to tilt the TV/Monitor other than specified range may give permanent damage to the mechanical part of the stand.***

Maintenance of Your LCD TV/Monitor

WARNING: To avoid risk of electric shock, do not disassemble the TV/Monitor cabinet (except for gaining access to the cable connectors as described on page 5). Users cannot service the TV/Monitor. User maintenance is restricted to cleaning as explained below:

Unplug the TV/Monitor from the power outlet before cleaning.

- To clean your LCD screen, lightly dampen a soft, clean cloth with water or mild detergent. If possible, use a special screen cleaning tissue or solution suitable for the antistatic coating.
- To clean the TV/Monitor cabinet, use a cloth lightly dampened with a mild detergent.
- Never use flammable cleaning material to clean your LCD TV/Monitor or any other electrical apparatus.

Index

A

Active Area 19
AUTO 9
Auto Store 18
Automatic Save 9

B

Bass 16, 18
Brightness 13, 17

C

Cable connections 5
Channel Sort 19
Coarse 14
Color Control 13
Colour 17
Contrast 13, 17

D

DC adapter 3
Display 21
Display Modes 31
DUAL/I/II 21
Duration 12

E

EXIT 9
Expand 15

F

Fine 14
Fine Tune 19

H

Halftone 12
H-position 16

I

Image Effect 15
Image Lock 14
Image Size 15
Information 14
Installation CD 3

K

Kensington security slot 4

L

Language 12

M

Manual Store 18
Melody 12
MENU 8
Mode 13, 17, 18
MUTE 8

O

On Screen Display 11
OSD Lock/Unlock 10

P

Pan 15
PC 8
Picture 17
Pin Assignments 30
PIP 8, 16
PIP Position 16
PIP Size 16
Plug and Play 6
Position 12
POWER 9
Power Indicator 6
Power-saving modes 24
Program 10

R

Remote Controller 3, 20
Reset 13, 14

S

Safety Instructions 2
Self-test feature check 6
Setup 18
Sharpness 17
Size 12
Sound 16, 18

T

Tilt the screen 4
Tint 17
Timer 19
Treble 16, 18
Troubleshooting 25
TV 8

U

User control locations 8
User Mode 13

V

VIDEO 8
Virtual Dolby 16, 18
Volume 10
V-position 16

Z

Zoom 15

Regulatory Information

FCC Information

User Instructions

The Federal Communications Commission Radio Frequency Interference Statement includes the following warning:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television receptions, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

User Information

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. You may find the booklet called How to Identify and Resolve Radio/TV Interference Problems helpful. This booklet was prepared by the Federal Communications Commission. It is available from the U.S. Government Printing Office, Washington, DC 20402, Stock Number 004-000-00345-4.

Warning

User must use shielded signal interface cables to maintain FCC compliance for the product.

Declaration of conformity for products Marked with FCC Logo

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The party responsible for product compliance:

SAMSUNG ELECTRONICS CO., LTD
America QA Lab of Samsung
85 West Tasman Drive
San Jose, CA 95134 USA
Tel) 408-544-5124
Fax) 408-544-5191

Provided with this monitor is a detachable power supply cord with IEC320 style terminations. It may be suitable for connection to any UL Listed personal computer with similar configuration. Before making the connection, make sure the voltage rating of the computer convenience outlet is the same as the monitor and that the ampere rating of the computer convenience outlet is equal to or exceeds the monitor voltage rating.

For 120 Volt applications, use only UL Listed detachable power cord with NEMA configuration 5-15P type (parallel blades) plug cap. For 240 Volt applications use only UL Listed Detachable power supply cord with NEMA configuration 6-15P type (tandem blades) plug cap.

IC Compliance Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations of ICES-003.

Cet appareil Numérique de classe B respecte toutes les exigences du Règlement ICES-003 sur les équipements produisant des interférences au Canada.

MPR II Compliance

This monitor complies with SWEDAC(MPR II) recommendations for reduced electric and magnetic fields.

European Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC), (92/31/EEC), (93/68/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms:

- EN55022:1998 – Radio Frequency Interference
- EN55024:1998 – Electromagnetic Immunity
- EN61000-3-2:1995 + A1 + A2 – Power Line Harmonics
- EN61000-3-3:1995 – Voltage Fluctuations
- EN60950 – Product Safety.

U.S.A.:

Samsung Computer Products Customer Service
400 Valley Road, Suite 201, Mt. Arlington, NJ 07856
Tel. : (973)601-6000, 1-800-SAMSUNG (1-800-726-7864)
Fax. : (973)601-6001
<http://samsungmonitor.com/>

CANADA:

Samsung Electronics Canada Inc.
7037 Financial Drive
Mississauga, Ontario L5N 6R3
Tel. : 1-800-SAMSUNG (1-800-726-7864)
Fax. : (905) 542-1199
<http://www.samsung.ca>

GERMANY:

TELEPLAN Rhein-Main GmbH
Feldstr. 16
64331 Weiterstadt
T. 06151/957-1306
F. 06151/957-1732
<http://www.samsung.de/>

AUSTRALIA:

Samsung Electronics Australia Pty Ltd.
Customer Response Centre
7 Parkview Drive, Homebush Bay NSW 2127
Tel : 1300 362 603
<http://www.samsung.com.au/>

ITALY:

Samsung Electronics Italia SpA
Via C. Donat Cattin,
5-20063 Cernusco sul Naviglio (Mi)
Tel. : 167-010740
<http://www.samsung-italia.com>

PANAMA:

Samsung Electronics Latinoamerica(Z.L.) S.A.
Calle 50 Edificio Plaza Credicorp, Planta Baja
Panama
Tel. : (507) 210-1122, 210-1133
Tel : 800-3278(FAST)
<http://www.samsung-latin.com/>

MEXICO:

Samsung Electronics Mexico S.A. de C.V.
Saturno 44 Col. Nueva Industrial Vallejo
Del. Gustavo A. Madero C.P. 07700
Mexico D.F.
Tel. 01 57 47 51 00
Fax. 01 57 47 52 02
RFC: SEM950215S98
<http://www.samsung.com.mx/>

ESPAÑA:

Samsung Electrónica Comercial Ibérica, S.A.
Ciencias, 55-65 (Polígono Pedrosa) 08908
Hospitalet de Llobregat (Barcelona)
Tel. : (93) 261 67 00
Fax. : (93) 261 67 50
<http://samsung.es/>

United Kingdom:

Samsung Electronics (UK) Ltd.
Samsung House, 225 Hook Rise South
Surrey KT6 7LD
Tel. : (0208) 391 0168
Fax. : (0208) 397 9949
<European Service Center & National Service>
Stafford Park 12 Telford, Shropshire, TF3 3BJ
Tel. : (0870) 242 0303
Fax. : (01952) 292 033
<http://samsungservice.co.uk/>

THAILAND:

THAI SAMSUNG SERVICE CENTER
MPA COMPLEX BUILDING, 1st-2nd Floor
175 SOI SUEKSA VIDHAYA SATHON SOI 12
SILOM ROAD, SILOM, BANGRAK
BANGKOK 10500
TEL : 0-2635-2567
FAX : 0-2635-2556

SOUTH AFRICA:

Samsung Electronics, 5 Libertas Road, Somerset Office Park,
Bryanston Ext 16. Po Box 70006, Bryanston, 2021, South Africa
Tel : 0027-11-549-1621
Fax : 0027-11-549-1629
<http://www.samsung.co.za>

BRASIL:

Samsung Eletrônica da Amazonia Ltda.
R. Prof. Manoelito de Ornellas, 303, Terro B
Chácara Sto. Antônio, CEP : 04719-040 São Paulo, SP
SAC : 0800 124 421
<http://www.samsung.com.br/>

SWEDEN/DENMARK/NORWAY/FINLAND:

Samsung Electronics AB
Box 713
S-194 27 UPPLANDS VÄSBY SVERIGE
Besöksadress : Johanneslundsvägen 4
Samsung support Sverige: 020-46 46 46
Samsung support Danmark : 8088-4646
Samsung support Norge: 8001-1800
Samsung support Finland: 0800-118001
Tel +46 8 590 966 00
Fax +46 8 590 966 50
<http://www.samsung.se>

IMPORTADO POR: SAMSUNG ELECTRONICS MEXICO S.A. DE C.V.
SATURNO 44 COL. NVA. INDUSTRIAL VALLEJO
DEL. GUSTAVO A. MADERO C.P. 07700
MEXICO D.F. TEL. 5747-5100
RFC: SEM950215S98
EXPORTADO POR: SAMSUNG ELECTRONICS CO., LTD.
JOONG-ANG DAILY NEWS BLDG.
7 SOON-WHA-DONG CHUNG-KU,
C.P.O BOX 2775, 1144 SEOUL, KOREA



"As an ENERGYSTAR® Partner, SAMSUNG has determined that this product meets the ENERGYSTAR® guidelines for energy efficiency."

P/N : BN68-00235A-04



Printed on recyclable paper